

What is claimed is:

1. An input protection circuit for protecting an internal circuit from an excessive signal originated from static electricity or the like, comprising:

5 input signal conversion section which has at least an input resistor, a feedback resistor and an operational amplifier and converts a potential of an input signal input from an input terminal in such a way that said potential of said input signal lies in an input range or a range of a
10 signal potential inputtable to said internal circuit;

 first protection section, connected to a virtual ground node between said input resistor and said operational amplifier and a first power-supply potential, for protecting said internal circuit by allowing an input current of said
15 input signal to flow toward said first power-supply potential when said potential of said input signal excessively exceeds said input range on the said first power-supply potential side; and

 second protection section, connected to an arbitrary
20 point between said input terminal and said input resistor and a second power-supply potential, for protecting said internal circuit by allowing said input current to flow toward said input terminal from said second power-supply potential when said potential of said input signal
25 excessively exceeds said input range on the second power-supply potential side.

2. An input protection circuit for protecting an

internal circuit from an excessive signal originated from static electricity or the like, comprising:

input signal conversion section which has at least an input resistor, a feedback resistor and an operational
5 amplifier and converts a potential of an input signal input from an input terminal in such a way that said potential of said input signal lies in an input range or a range of a signal potential inputtable to said internal circuit;

first protection section, connected to an arbitrary
10 point between said input terminal and said input resistor and a first power-supply potential, for protecting said internal circuit by allowing an input current of said input signal to flow toward said first power-supply potential when said potential of said input signal excessively exceeds said
15 input range on the said first power-supply potential side; and

second protection section, connected to a virtual ground node between said input resistor and said operational amplifier and a second power-supply potential, for
20 protecting said internal circuit by allowing said input current to flow toward said input terminal from said second power-supply potential when said potential of said input signal excessively exceeds said input range on the second power-supply potential side.

25 3. The input protection circuit according to claim 1, wherein said input signal conversion section converts said potential of said input signal input from said input

terminal in such a way that said potential of said input signal lies in said input range when said potential of said input signal exceeds said first power-supply potential or said second power-supply potential.

5 4. The input protection circuit according to claim 2, wherein said input signal conversion section converts said potential of said input signal input from said input terminal in such a way that said potential of said input signal lies in said input range when said potential of said input signal exceeds said first power-supply potential or
10 said second power-supply potential.

 5. The input protection circuit according to claim 1, wherein said operational amplifier changes a potential at said virtual ground node by changing a bias potential so as
15 to convert said potential of said input signal input from said input terminal in such a way that said potential of said input signal having exceeded said input range lies in said input range.

 6. The input protection circuit according to claim 2,
20 wherein said operational amplifier changes a potential at said virtual ground node by changing a bias potential so as to convert said potential of said input signal input from said input terminal in such a way that said potential of said input signal having exceeded said input range lies in
25 said input range.

 7. The input protection circuit according to claim 1, wherein said feedback resistor has a plurality of resistors

and a switch for switching connection of said plurality of resistors.

8. The input protection circuit according to claim 2,
wherein said feedback resistor has a plurality of resistors
5 and a switch for switching connection of said plurality of resistors.

9. The input protection circuit according to claim 1,
wherein said operational amplifier is a differential
operational amplifier to which said input signal is
10 differentially input.

10. The input protection circuit according to claim 2,
wherein said operational amplifier is a differential
operational amplifier to which said input signal is
differentially input.